



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
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August 4, 2009

Mr. Peter P. Sena, III
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
P. O. Box 4, Route 168
Shippingport, PA 15077

**SUBJECT: BEAVER VALLEY POWER STATION - NRC INTEGRATED INSPECTION
REPORT 05000334/2009003 AND 05000412/2009003**

Dear Mr. Sena:

On June 30, 2009, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station Units 1 and 2. The enclosed integrated inspection report documents the inspection results which were discussed on July 22, 2009, with members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, this report documents one NRC-identified finding and one self-revealing finding, both of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation which was determined to be of low safety significance is listed in this report. However, because of the very low safety significance and because the issues have been entered in the corrective action program, the NRC is treating the findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any of the findings in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Beaver Valley. In addition, if you disagree with the characterization of the cross-cutting aspect of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region 1 and the NRC Senior Resident Inspector at the Beaver Valley Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosures, and your response (if any) will be available electronically for public inspection in the

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We appreciate your cooperation. Please contact me at 610-337-5200 if you have any questions regarding this letter.

Sincerely,

/RA/

Ronald R. Bellamy, Ph.D., Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-334, 50-412
License Nos: DPR-66, NPF-73

Enclosures: Inspection Report 05000334/2009003; 05000412/2009003
w/Attachment: Supplemental Information

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We appreciate your cooperation. Please contact me at 610-337-5200 if you have any questions regarding this letter.

Sincerely,
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos. 50-334, 50-412

License Nos. DPR-66, NPF-73

Report Nos. 05000334/2009003 and 05000412/2009003

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Post Office Box 4
Shippingport, PA 15077

Dates: April 1, 2009 through June 30, 2009

Inspectors: D. Werkheiser, Senior Resident Inspector
D. Spindler, Resident Inspector
J. Ayala, Resident Inspector
P. Kaufman, Senior Reactor Inspector
T. Moslak, Health Physicist
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Approved by: R. Bellamy, Ph.D., Chief
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SUMMARY OF FINDINGS

IR 05000334/2009003, IR 05000412/2009003; 04/01/2009 - 06/30/2009; Beaver Valley Power Station, Units 1 & 2; Post-Maintenance Testing, Problem Identification and Resolution

The report covered a 3-month period of inspection by resident inspectors, regional reactor inspectors, and a regional health physics inspector. Two (GREEN) findings were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. Cross-cutting aspects associated with findings are determined using IMC 0305, "Operating Reactor Assessment Program," dated January 2009. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Mitigating Systems

- Green. A non-cited violation (NCV) of 10CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was identified for failure to specify and perform an adequate post-maintenance test (PMT) after replacing a safety-related river water check-valve. Specifically, the PMT under work order 200233562 was not adequate to verify the proper function of the valve 1RW-57 prior to its return to service. The PMT was subsequently performed successfully. This issue was entered into the licensee's corrective action program as condition report 09-59866.

The failure to specify and perform an adequate PMT after replacing a safety-related river water check-valve was a performance deficiency. The finding was more than minor in accordance with IMC 0612, Appendix B (Section 1-3), "Issue Screening," because the failure to specify and perform an adequate PMT is associated with the procedure quality performance attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

This finding has a cross-cutting aspect in the area of human performance associated with resources because the licensee did not have complete, accurate, and up-to-date maintenance work procedures [IMC 0305 Aspect: H.2(c)] (Section 1R19).

- Green. The inspectors identified a non-cited violation (NCV) of 10CFR Part 50, Appendix B, Criterion III, "Design Control," in that FENOC failed to maintain safety-related cables in an environment for which they were designed. Since NRC Information Notice 2002-12 was issued, FENOC has had several opportunities to trend as-found data, implement effective maintenance programs, and identify and thoroughly evaluate long-term adverse conditions for underground safety-related cables exposed to continuous submerged environments. Cables affected include those for Unit 1 river water and Unit 2 service water. The issue was entered into the licensee's corrective action program (CR 09-60496) to initiate a review of the current manhole and cable monitoring programs, and to initiate long-term corrective actions.

Failure to maintain safety related cables in an environment for which they were designed is considered a performance deficiency. The finding was more than minor in accordance with IMC 0612, Appendix B (Section 1-3), "Issue Screening," because if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. Specifically, the deficiency did not result in the present loss of operability or functionality and did not represent a risk significant external event such as flooding. The issue was entered into the licensee's corrective action program (CR 09-60496) to initiate a review of the current manhole and cable monitoring programs, and to initiate long-term corrective actions.

The performance deficiency had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because the licensee did not thoroughly evaluate problems such as resolutions, address causes, and evaluate the effectiveness of corrective actions [IMC 0305 Aspect: P.1 (c)] (Section 4OA2.3).

Other Findings

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status:

Unit 1 began the inspection period at 100 percent power. On April 1, the unit began a planned coastdown, on April 16 reduced power to 82 percent for planned condenser waterbox cleaning, and shut down on April 19 to commence a refueling outage (1R19). On May 21, the unit was restarted and synchronized to the grid, achieving full power on May 24. The unit remained at 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On April 18, the unit was down-powered to 97 percent for planned turbine valve testing and returned to full power later the same day. On May 30 through May 31 the unit was reduced to 96 percent to address first-point feedwater heater level control issues and returned to full power. The unit remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity [R]

1R01 Adverse Weather Protection (71111.01)

.1 Seasonal Susceptibility

- a. Inspection Scope (2 samples – Hot Weather / Hurricane, Offsite and Alternate AC Power System Readiness)

The inspectors reviewed the Beaver Valley Power Station (BVPS) design features and FENOC's implementation of procedures to protect risk significant mitigating systems from adverse weather effects due to summer weather and hurricanes. The inspectors conducted interviews with various station personnel to gain insights into the station's hot weather and hurricane readiness and reviewed the status of various work orders categorized as warm weather preparation activities. The inspectors reviewed the corrective action program database, operating experience, and the Updated Final Safety Analysis Report (UFSAR), to determine the types of adverse weather conditions to which the site is susceptible, and to verify that the licensee was appropriately identifying and resolving weather-related equipment problems.

The inspectors also reviewed BVPS design features and FENOC's implementation of procedures to handle issues that could impact offsite and alternating current (AC) power systems. The inspectors reviewed FENOC's procedures and programs which discussed the operation and availability/reliability of offsite and alternate AC power systems during adverse weather. The inspectors verified that communication protocols between the transmission system operator and FENOC existed, and the appropriate information would be conveyed when potential grid stress and disturbances existed. The inspectors also verified that FENOC's procedures contained actions to monitor and maintain the availability/reliability of offsite and onsite power systems prior to and during adverse weather conditions.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns (71111.04Q)

a. Inspection Scope (4 samples)

The inspectors performed four partial equipment alignment inspections during conditions of increased safety significance, including when redundant equipment was unavailable during maintenance or adverse conditions. The partial alignment inspections were also completed after equipment was recently returned to service after significant maintenance. The inspectors performed partial walkdowns of the following systems, including associated electrical distribution components and control room panels, to verify the equipment was aligned to perform its intended safety functions:

- Unit 1, on April 14, emergency diesel generator No. 1 during the performance of 1OST-36.2, "Diesel Generator No. 2 Monthly Test;"
- Unit 1, on April 16, train 'A' high head safety injection during the performance of 1OST-7.19D, "Safety Injection Relay Test (Slave Relay K610)-Train B;"
- Unit 1, on April 21, train 'B' residual heat removal system while 'A' electrical train was cleared for maintenance; and
- Unit 1, on April 29, containment penetrations during the core reload.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope (2 samples)

The inspectors performed complete system walkdowns of the following systems to verify that the critical portions, such as valve positions, switches, and breakers, were correctly aligned in accordance with procedures, and to identify any discrepancies that may have had an effect on operability.

The inspectors also reviewed outstanding maintenance work orders to verify that the deficiencies did not significantly affect the system function. In addition, the inspectors discussed system health with the system engineer and reviewed the condition report database to verify that equipment alignment problems were being identified and appropriately resolved. Documents reviewed during the inspection are listed in the Attachment.

- On June 4, alignment and condition of the Unit 2 'C' service water pump and 'A' service water train while the 'D' main intake bay (affecting the 'A' service water pump) was out of service for planned cleaning; and

- On June 6, alignment of 'A' and 'B' motor-driven auxiliary and dedicated feedwater pumps while the turbine-driven feedwater pump was out of service for planned maintenance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Sample Review (71111.05Q)

a. Inspection Scope (7 samples)

The inspectors reviewed the conditions of the fire areas listed below, to verify compliance with criteria delineated in Administrative Procedure 1/2-ADM-1900, "Fire Protection," Rev. 19. This review included FENOC's control of transient combustibles and ignition sources, material condition of fire protection equipment including fire detection systems, water-based fire suppression systems, gaseous fire suppression systems, manual firefighting equipment and capability, passive fire protection features, and the adequacy of compensatory measures for any fire protection impairments. Documents reviewed are listed in the Attachment:

- Unit 2, TR-MT-2 Main Transformer (Fire Area TR-1);
- Unit 2, TR-2C Unit Station Service Transformer (Fire Area TR-2);
- Unit 2, TR-2D Unit Station Service Transformer (Fire Area TR-3);
- Unit 1, AE Switchgear Room, Battery Rooms 1& 3 (Fire Area ES-1);
- Unit 1, DF Switchgear Room, Battery Rooms 2& 4 (Fire Area ES-2);
- Unit 1, Reactor Containment (Fire Area RC-1); and
- Unit 1, Rod Control Motor Generator Room (Fire Area MG-1)

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Observation (71111.05A)

a. Inspection Scope (1 sample)

The inspectors observed personnel performance during response to an indicated fire in the Emergency Response Facility sub-station (also see Section 40A3.1) by the fire brigade on June 18. The inspection evaluated the station's demonstration of readiness in fire fighting response. The inspectors observed the fire brigade members using protective clothing, turnout gear, and self-contained breathing apparatus and entering the fire area in a controlled manner. The inspectors also observed the fire fighting equipment brought to the fire scene to evaluate whether sufficient equipment was available to effectively control and extinguish the simulated fire. The inspectors evaluated whether the permanent plant fire hose lines were capable of reaching the fire area and whether hose usage was adequate. The inspectors observed the fire fighting directions and communications between fire brigade members. The inspectors verified

that the pre-fire plan was used and observed the post-event critique to evaluate fact-finding, lessons-learned and whether any immediate deficiencies needed addressed.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample – underground cables)

The inspectors reviewed a sample of internal flood protection measures regarding cables located in underground manholes. The inspectors selected a FENOC inspection of manholes 8A and 8B that contain Unit 1 and Unit 2 safety-related power and control cables near the main intake structure. These cable manholes are underground and also the focus of a focus problem identification and resolution review (see section 4OA2.3). This review was conducted to evaluate FENOC's protection of the enclosed safety-related systems from internal flooding condition. The inspectors entered the confined area with FENOC personnel, inspected the manhole, and monitored licensee maintenance activities. The inspectors also reviewed the UFSAR, related internal flooding evaluations, and other related documents. The inspectors examined the as-found equipment and conditions to ensure that they remained consistent with those indicated in the design basis documentation, flooding mitigation documents, and risk analysis assumptions. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

One finding of significance was identified and documented in section 4OA2.3.

1R08 Unit 1 Inservice Inspection (IP 71111.08)

a. Inspection Scope (1 sample)

The purpose of this inspection was to assess the effectiveness of the licensee's in-service inspection (ISI) program for monitoring degradation of the reactor coolant system boundary, risk significant piping system boundaries, and the containment boundary for Unit 1. The inspector assessed the inservice inspection activities using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI and applicable NRC Regulatory Requirements. The inspector selected a sample of nondestructive examination (NDE) activities from the Unit 1 in-service inspection plan for the 1R19 outage for observation, documentation and record review, and evaluation for compliance with the requirements of the BVPS Unit 1 Risk-Informed Inservice Inspection Program and ASME Section XI. A sample of activities associated with the repair/replacement of safety related pressure boundary components was also reviewed. The sample selection was based on the inspection procedure objectives, risk significance, availability, and specifically on components and systems where degradation would result in a significant challenge to the integrity of pressure boundary components. The inspector also conducted a review of TI 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds for Beaver Valley Power Station Unit 1.

The inspector reviewed in-process NDE, examination data records, deficiency reports and interviewed NDE personnel to evaluate the technician skills and performance, test equipment capabilities, and examination techniques and to verify that the activities, including calibration, set-up, examination techniques, data analysis, and that indications and defects were evaluated and dispositioned in accordance with ASME Boiler and Pressure Vessel Code, 2001 Edition to 2003 Addenda Section XI, relevant ASME Code Cases, selected relief requests, BVPS Unit 1 Risk-Informed Inservice Inspection Program, the Materials Reliability Program (MRP) recommendations, and compliance with 10CFR 50.55a.

The inspector also verified that observed indications and deficient conditions were being adequately entered and dispositioned in the BVPS corrective action program.

Non-Destructive Examination (NDE) and Welding Activities

The following dye penetrant testing (PT), ultrasonic testing (UT), magnetic particle testing (MT), and visual testing (VT) activities performed during 1R19 outage were reviewed by the inspector.

The inspector observed and reviewed a sample of NDE examinations and documentation records of manual UT examination of reactor coolant system (RCS) 'A' loop cold and hot leg nozzle-to-safe-end dissimilar metal (DM) welds RC-E-1A-N11 and RC-E-1A-N12 and RCS 'C' loop cold leg pipe girth weld DLW-LOOP3-7-S-02 performed as follow-up UT examination for a flaw indication initially identified in March 1996. The inspector reviewed visual bare metal inspections (BMI) records and photos of the Unit 1 reactor pressure vessel lower head penetration nozzles. The resident inspection staff directly observed VT boric acid walk-down inspections inside the Unit 1 containment. The inspector also performed a document review of UT thickness examination data records of the Unit 1 containment liner, which was an examination in the area around a through-wall hole that was identified during 1R19 outage and magnetic particle and UT examinations of the liner replacement repairs, UT thickness examination data records of the Unit 1 containment liner area #3, and PT examination data record of residual heat removal (RHR) welded attachment RH-1-1-A-02.

Qualified FENOC inspectors visually examined the condition of accessible portions of the containment, including the inside surface of the containment liner for corrosion, mechanical damage and other degradation mechanisms during the 1R19 outage. As a result of an observed blister in the protective paint coating and protruding rust on the inside surface of the containment liner at the 738' elevation, a work order was written to clean the area to allow further evaluation. The cleaning activity uncovered a through-wall corrosion rectangular hole approximately 1" (horizontal) x 3/8" (vertical) in the containment liner which was documented in CR 09-57589 and 09-57762 and reported to the NRC per 10CFR50.72 on April 23, 2009. Manual UT thickness examinations of the containment liner of the affected area were taken as part of ASME Section XI, Subsection IWE to determine the extent of the liner corrosion. The inspectors observed various aspects of the containment liner NDE inspections, liner plate replacement, repair welding, and testing activities during the 1R19 outage. A more detailed inspection and assessment of the containment liner through-wall corrosion hole is documented in inspection report 05000334/2009006.

The inspector examined disposition for continued operation, without repair or rework, of non-conforming condition indications identified during 1R19 outage ISI activities. The inspector reviewed a liquid penetrant (PT) examination report PT-09-1003 and evaluation report EV-09-1002 of welded attachment RH-1-1-A-02, located on an RHR system elbow for spring can hanger SH-40, which identified a liner indication at the attachment/elbow interface area that was determined acceptable after light filling of the surface indication.

Repair/Replacement Consisting of Welding

Ultrasonic (UT) examinations performed on base material per the Materials Reliability Program (MRP) MRP-146 recommendations identified two circumferential indications approximately 3/8 inches in length in the stainless steel base material adjacent to a socket weld on the horizontal portion of BV-1RC-41, a 2-inch drain line connected to the "A" reactor coolant system (RCS) Hot Leg. The deficient condition was documented in CR 09-58004 and work order 200367565 was initiated to replace the affected piping segment of the 2-inch drain line. To verify suitability of materials, welding activities performed, applicable NDE performed, and ISI implementing procedures were in accordance with the ASME code requirements the inspector reviewed the work scope, activity sequence, weld filler metal selection, welding procedure, non-destructive examination tests, acceptance criteria and post work testing.

Reactor Pressure Vessel Lower Head Penetration Nozzle Inspection

The inspector verified the inspection results of the visual BMI of the Unit 1 reactor pressure vessel lower head penetration nozzles that was conducted by VT-qualified FENOC personnel during 1R19 by reviewing visual inspection documentation record results and photos of the BMI inspection. No boric acid leakage was observed around the annulus area on the 43 penetrations inspected.

Pressurized Water Reactor Vessel Upper Head Penetration Inspection

No inspections were performed of the BVPS Unit 1 reactor vessel upper head during 1R19 outage because the Unit 1 reactor vessel head was replaced in 2006 during 1R17 outage. The inspector reviewed applicable NRC Regulatory Requirements and ASME Code, Section XI, to verify that no examinations were required of the Unit 1 reactor vessel upper head.

Boric Acid Corrosion Control (BACC) Inspection Activities

The inspector discussed the boric acid control program controlled by BVPS procedure NOP-ER-2001, Boric Acid Corrosion Control Program with the boric acid corrosion control program owner and sampled photographic inspections of boric acid found on safety significant piping and components inside Unit 1 containment during Mode 3 walk downs conducted by FENOC personnel in April 2009. The walk down was directly observed by the resident inspection staff, to verify that the visual inspections were performed in accordance with the procedure and checklists which emphasized the areas and locations where boric acid leaks could cause degradation of safety significant components and that deficient conditions were identified and documented. Approximately 138 locations were identified with boric acid during 1R19 walk down inspections.

A sample of engineering evaluations/corrective actions associated with these boric acid deficiencies and a sample of these items on the Unit 1 mode hold list were reviewed by the inspector. The inspector confirmed that condition reports were assigned corrective actions consistent with the requirements of the ASME Code and 10 CFR 50, Appendix B, Criterion XVI. The inspector reviewed various condition reports and work orders to resolve the identified deficient boric acid conditions.

Steam Generator (SG) Tube Inspections

The inspectors reviewed the BVPS Unit 1 1R18 steam generator degradation assessment SG-CDME-07-24. No inspections were performed of the BVPS Unit 1 steam generator tubes during 1R19 outage because the Unit 1 steam generators were replaced in 2006 during 1R17 outage. The inspector reviewed applicable NRC Regulatory Requirements and the ASME Code Section XI to verify that no examinations were required during 1R19.

Problem Identification and Resolution

The inspector reviewed a sample of condition reports related to ISI, MRP-139, and MRP-146 program activities to assess FENOC's effectiveness in problem identification and resolution and determined that deficiencies are being appropriately identified, and entered into and resolved by the corrective action program.

1R11 Licensed Operator Regualification Program (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed Unit 2 licensed operator simulator training on June 23. The inspectors evaluated licensed operator performance regarding command and control, implementation of normal, annunciator response, abnormal, and emergency operating procedures, communications, technical specification review and compliance, and emergency plan implementation. The inspectors evaluated the licensee staff training personnel to verify that deficiencies in operator performance were identified, and that conditions adverse to quality were entered into the licensee's corrective action program for resolution. The inspectors reviewed simulator physical fidelity to assure the simulator appropriately modeled the plant control room. The inspectors verified that the training evaluators adequately addressed that the applicable training objectives had been achieved.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

a. Inspection Scope (2 samples)

The inspectors evaluated Maintenance Rule (MR) implementation for the issues listed below. The inspectors evaluated specific attributes, such as MR scoping, characterization of failed structures, systems, and components (SSCs), MR risk characterization of SSCs, SSC performance criteria and goals, and appropriateness of

corrective actions. The inspectors verified that the issues were addressed as required by 10 CFR 50.65 and the licensee's program for MR implementation. For the selected SSCs, the inspectors evaluated whether performance was properly dispositioned for MR category (a)(1) and (a)(2) performance monitoring. MR System Basis Documents were also reviewed, as appropriate.

- Unit 1, Solid State Protection System does not achieve MR a(1) goals, as documented in CR 09-59359; and
- Unit 1, 1CCP-P-1A, head ratio greater than acceptance criteria as documented in CR 09-60127.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Control (71111.13)

a. Inspection Scope (5 samples)

The inspectors reviewed the scheduling and control of five activities, and evaluated their effect on overall plant risk. This review was conducted to ensure compliance with applicable criteria contained in 10 CFR 50.65(a)(4). Documents reviewed during the inspection are listed in the Attachment.

- On April 20, Unit 1 refueling outage defense-in-depth report re-assessment for changes in calculated time-to-boil values, as document in CR 09-57463;
- On April 21, Unit 1 yellow shutdown risk during EDG 1-1 autoload test;
- On May 3, Unit 1 change in shutdown risk profile for repairs to "B" Residual Heat Removal Pump (1DRH-P-1A) (CR 09-58513);
- Week of June 1, Unit 1 and Unit 2, review of station risk during planned 'D' main intake bay cleaning; and
- During June 15-21, Unit 1 and Unit 2, review of changed and emergent work coordination for that planned week's activities, including a review of station processes and procedures for risk determination.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (6 samples)

The inspectors evaluated the technical adequacy of selected immediate operability determinations (IOD), prompt operability determinations (POD), or functionality assessments (FA), to verify that determinations of Technical Specifications (TS) operability were justified, as appropriate. In addition, the inspectors verified that TS limiting conditions for operation (LCO) requirements and UFSAR design basis requirements were properly addressed. In addition, the inspectors reviewed

compensatory measures implemented to ensure the measures worked and were adequately controlled. Documents reviewed are listed in the Attachment.

- April 12 -14, Unit 1 turbine-driven auxiliary feedwater pump (FW-P-2) steam isolation valve (MOV-1MS-105) failed to open electrically as documented in CR 09-57106;
- On April 15, Unit 1 & 2, licensee's review and assessment of NRC Regulatory Issue Summary 2009-02 documented in CR 09-57275;
- On April 21, Unit 1 primary component cooler inlet temperature indicator failure to containment penetration cooling coils documented in CR 09-57667;
- On April 23, Unit 1 containment liner plate degradation documented in CRs 09-57589, 09-57762;
- On May 6, Unit 1 emergency diesel generator 1-2 original governor re-installation due to issues documented in CR 09-58435; and
- On June 16, Unit 2 licensee's functional assessment regarding fire protection safe shutdown report analysis of station air documented in CRs 09-60058, 09-60162, 06-6932.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope (2 samples)

The inspectors reviewed the following temporary modifications (TMOD) based on risk significance. The TMOD and associated 10 CFR 50.59 screening were reviewed against the system design basis documentation, including the UFSAR and the TS. The inspectors verified the TMODs were implemented in accordance with Administrative (ADM) Procedure, 1/2-ADM-2028, "Temporary Modifications," Rev. 9. Documents reviewed are listed in the Attachment.

- TMOD ECP 09-0174 to provide an alternate discharge path for Unit 1 river water from the outlet of 'A' emergency diesel generator heat exchanger (1EE-E-1A) to the normal discharge catch basin; and
- TMOD ECP 09-01453 to provide additional mitigating configuration and control of plant operations during solid plant operation while shutdown.

b. Findings

No findings of significance were identified.

.2 Permanent Plant Modifications

a. Inspection Scope (1 sample)

The inspectors evaluated the design basis impact of the modification to the Unit 1 reactor trip breaker circuit under ECP 08-0134-002. The inspectors reviewed the adequacy of the associated 10 CFR 50.59 screening, verified that attributes and parameters within the design documentation were consistent with required licensing and design bases, as well as credited codes and standards, and observed portions of the modification to verify that changes described in the package were appropriately implemented. The inspectors also verified the post-modification testing was satisfactorily accomplished to ensure the system and components operated consistent with their intended safety function. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (7 samples)

The inspectors reviewed the following activities to determine whether the post-maintenance tests (PMT) adequately demonstrated that the safety-related function of the equipment was satisfied given the scope of the work, and that operability of the system was restored. In addition, the inspectors evaluated the applicable acceptance criteria to verify consistency with the design and licensing bases, as well as TS requirements. The inspectors witnessed the test or reviewed test data to verify results adequately demonstrated restoration of affected safety functions. The inspectors also verified that conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment.

- On April 3, 1OST-30.3, after planned maintenance on Unit 1 'B' train river water;
- On April 14, Unit 1, new-fuel frame hoist motor (1FN-W-1-MOTOR) cable replacement;
- On April 21, Unit 1, replacement and retest of VSR2 in No.1-1 emergency diesel output breaker (4KVS-1AE-1E9) control circuit;
- On May 6, Unit 1, emergency diesel generator No. 1-2 (1EE-EG-2) governor replacement;
- On May 8, Unit 1, final painting and baseline volumetric scan after containment plate liner repair;
- On May 19, Unit 1, replacement of number 2 seal on 'A' reactor coolant pump; and
- On May 30, Unit 1, replacement of 1RW-57, 'A' river water pump (1WR-P-1A) discharge check valve.

b. Findings

Introduction: A self-revealing Green NCV of 10CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was identified for failure to specify and perform an adequate PMT after replacing a safety-related river water check-valve. Specifically, train 'A' river water was declared operable after replacement of check valve 1RW-57 per work order 200233562 without an adequate PMT.

Description: On May 25, 2009, the 'A' main intake bay was removed from service for planned bay cleaning. This rendered the 'A' safety-related river water pump (1WR-P-1A) inoperable. The spare 'C' river water pump (1WR-P-1C) was aligned to service the 'A' river train. During the bay cleaning, the 'A' river water pump discharge check valve (1RW-57) was replaced on May 28 by mechanical maintenance per work order 200233562. This work order did not specify PMT requirements. The work order was signed complete and the 'A' intake bay was returned to service on May 28. On May 29 the 'A' river water train was re-aligned, placing the 1WR-P-1A pump in service and operable at 12:25 p.m. At 2:40 p.m., it was identified that PMT was not performed for replacement of 1RW-57. The shift manager immediately declared 'A' train river water inoperable and aligned the WR-P-1C to serve the 'A' river water train.

The inservice testing coordinator was contacted to identify post-maintenance testing requirements. ASME OM Code, Section ISTC-5221 requires a forward flow and reverse-closure verification for post-maintenance testing following a check valve replacement. The PMT was accomplished satisfactorily on June 1.

The licensee's post-maintenance process failed to specify an adequate PMT for the check valve replacement. The work order lacked any operational PMT and was the apparent cause of the performance deficiency. The licensee documented this issue in CR 09-59866.

Analysis: The failure to specify and perform a PMT after replacing a safety-related river water check-valve was a performance deficiency. The inspectors determined that the performance deficiency was not similar to the examples for minor deficiencies contained in IMC 0612, Appendix E, "Examples of Minor Issues". The finding was more than minor in accordance with IMC 0612, Appendix B (Section 1-3), "Issue Screening," because the failure to specify and perform a PMT is associated with the procedure quality performance attribute of the mitigating systems cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

In accordance with IMC 0609.04 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency which resulted in a loss of function.

This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not have complete, accurate, and up-to-date maintenance work procedures [H.2(c)].

Enforcement: 10 CFR 50, Appendix B, Criterion V, requires, in part, that procedures for performing maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to this requirement, in May 2009, FENOC failed to specify and perform PMT after replacement of check value 1RW-57 prior to returning the system to operable status. Because this deficiency is considered to be of very low safety significance (Green), and was entered into the corrective action program (CR 09-59866), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV**

5000334/2009003-01, Inadequate Post-Maintenance Testing Specified for Safety-Related River Water Check Valve)

1R20 Refueling and Outage Activities (71111.20)

.2 Unit 1 Refueling Outage (1R19)

a. Inspection Scope (1 sample)

The inspectors observed selected Unit 1 outage activities to determine whether shutdown safety functions (e.g. reactor decay heat removal, spent fuel pool cooling, and containment integrity) were properly maintained as required by TS and plant procedures. The inspectors evaluated specific performance attributes including operator performance, communications, and instrumentation accuracy. The inspectors reviewed procedures and/or observed selected activities associated with the refueling outage. The inspectors verified activities were performed in accordance with procedures and verified required acceptance criteria were met. The inspectors also verified that conditions adverse to quality identified during performance of selected outage activities were identified by the licensee's corrective action program. Documents reviewed are listed in the Attachment. The inspectors also evaluated the following activities:

- Pre-outage shutdown safety review / defense-in-depth reports;
- Pre-outage temperature and power coastdown;
- Reactor plant shutdown and cooldown, including evaluation of cooldown rates;
- Solid plant operations;
- Configuration management, compliance with TS when taking equipment out of service;
- Implementation of clearance activities and confirmation that tags were hung properly;
- Status and configuration of electrical systems and switchyard activities;
- Monitoring of decay heat removal and spent fuel cooling;
- Fuel handling and activities that could affect reactivity;
- Final containment walkdown and closeout inspection;
- The digital video documenting the core reload and verification that fuel assembly placement was consistent with the reload map;
- Subsequent shutdown and cooldown to replace 'A' reactor coolant pump seals after initial startup for physics testing; and
- Final startup and power ascension to full power.

During the refueling outage FENOC identified a degradation of the containment liner during planned containment inspections. The review of this issue is documented in a separate report 05000334 / 2009006 (ADAMS ML091870328, on July 6, 2009). The inspectors also verified that refueling outage activities were in compliance with TS during the containment liner repair and retest. This issue was also reviewed for operability (section 1R15, 1R19) and event follow-up (section 4OA3.1)

The inspectors also observed selected management review activities associated with restart readiness of Unit 1, following completion of the 1R19 refueling activities. The restart readiness review meeting was accomplished as required by NOBP-OM-4010, "Restart Readiness for Plant Outages" Rev. 4, during the week of May 11. The purpose

of the review, in part, was to assure that the plant's material condition, programs/processes, and personnel were ready for startup and safe, reliable operation after completion of outage activities.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (8 samples: 1 isolation valve, 1 leak rate, 1 in-service testing and 5 routine.)

The inspectors witnessed the performance of or reviewed test data for the eight following Operation Surveillance Test (OST) and Maintenance Surveillance (MSP) packages. The reviews verified that the equipment or systems were being tested as required by TS, the UFSAR, and procedural requirements. The inspectors also verified that the licensee established proper test conditions, that no equipment pre-conditioning activities occurred, and that acceptance criteria were met.

- On March 26, 1OST-13.7B, Rev. 4, "Containment Depressurization System Operating Surveillance Test" [in-service testing];
- On April 14, 1OST-1.04A, Rev. 0, "Train B, CIA On-line Valve Relay Test" [isolation valve];
- On April 15, 1OST-36.2, Rev. 51, "Diesel Generator No. 2 Monthly Test";
- On April 19, 1BVT-1.21.2, Rev. 15, "Trevitest Method for Main Steam Safety Valve Setpoint Check";
- On April 20, 1OST-36.04, Rev. 25, "Diesel Generator No. 2 Automatic Test";
- On June 6, 1OST-15.1, Rev. 22, "[1CC-P-1A] Quarterly Test";
- On May 10, 1OST-47.2B, Rev. 8, "Containment Closeout Inspection"; and
- On June 24, Unit 2, 2OST-6.2A, Rev. 27, "Computer Generated Reactor Coolant System Water Inventory Balance" [leak rate].

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (10 samples)

During the period April 27 - 30, the inspector conducted the following activities to verify that the licensee was properly implementing physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically controlled areas during the Unit 1 refueling outage. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, relevant TS, and the licensee's procedures.

This inspection activity represents the completion of ten (10) samples relative to this inspection area.

Plant Walkdown and Radiation Work Permits (RWP) Reviews

- The inspector toured accessible radiologically controlled areas in the Unit 1 reactor building containment (RBC), primary auxiliary building, and radwaste building and with the assistance of a radiation protection technician, performed independent radiation surveys of selected areas to confirm the accuracy of survey data, and the adequacy of postings. Radiation protection technicians were questioned regarding their knowledge of plant radiological conditions for selected jobs, and the associated controls.
- The inspector identified radiologically significant jobs being performed in the Unit 1 RBC. The inspector reviewed the applicable RWPs, ALARA Plans (AP), and the electronic dosimeter dose/dose rate set points, for the associated tasks, to determine if the radiological controls were acceptable and if the set points were consistent with plant policy. Jobs reviewed included steam generator sludge lancing (RWP 109-4015, AP 09-1-24), insulation removal/replacement (RWP 109-4032, AP 09-1-29), remove/replace core exit thermocouples (RWP 109-4019, 09-1-26), and in-service inspections (RWP 109-4023, AP 09-1-29).
- For the jobs reviewed, the inspector determined that there were no significant dose gradients requiring relocation of dosimetry. The inspector determined that tele-dosimetry was extensively used to monitor and control worker exposure for dose intensive jobs.
- There were no current radiation work permits for airborne radioactivity areas with the potential for individual worker internal exposures to exceed 50 mrem during the 1R19 outage. The inspector reviewed air sampling records for ongoing jobs to confirm that airborne contamination was insignificant.
- The inspector evaluated the effectiveness of contamination controls by reviewing personnel contamination event reports (and related condition reports), and observing practices at various work locations in the RBC and at the step off pad.

High Radiation Area and Very High Radiation Area Controls

- The inspector reviewed procedures related to the control of high dose rate, high radiation area and very high radiation areas. The inspector discussed these procedures with Radiation Protection Supervision to determine that any changes made to these procedures did not reduce safety measures.
- Keys to locked high radiation areas (LHRA) located in Unit 1 were inventoried, and accessible LHRAs were verified to be properly secured and posted during plant tours.
- The inspector reviewed the preparations made for various potentially high dose rate jobs including removal of core exit thermocouples, and insulation modifications made to various systems in the RBC. Included in this review were evaluating the effectiveness of contamination control measures, source term controls, and use of temporary shielding.

Radiation Worker and Radiation Protection Technician Performance

- During tours of radiologically controlled areas in the Unit 1 RBC, the inspector questioned radiation workers and radiation protection technicians regarding the radiological conditions at the work site and the radiological controls that applied to their task. Additionally, radiologically-related condition reports, including dose/dose rate alarm reports, were reviewed to evaluate if the incidents were caused by repetitive radiation worker or technician errors and to determine if an observable pattern traceable to a similar cause was evident.
- The inspector attended the pre-job RWP briefings for a spent resin transfer, and for steam generator foreign object search and retrieval (FOSAR) to determine if workers were properly informed, including discussions of past operating experiences, identification of the radiological conditions associated with their tasks, electronic dosimetry dose/dose rate set points, and dose mitigation measures.

Problem Identification and Resolution

- The inspectors evaluated the licensee's program for assuring that access controls to radiologically significant areas were effective and properly implemented by reviewing various Nuclear Oversight Field Observation Reports, radiation protection supervisory daily logs, and relevant condition reports. The inspector determined if problems were identified in a timely manner, that an extent of condition and cause evaluation were performed when appropriate, previous radiation surveys remained valid, and corrective actions were appropriate to preclude repetitive problems.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (9 samples)

During the period April 27 - 30, the inspector conducted the following activities to verify that the licensee was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as is reasonably achievable (ALARA) for activities performed in the 1R19 refueling outage. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, and the licensee's procedures. This inspection activity represents the completion of nine (9) samples relative to this inspection area.

Radiological Work Planning

- The inspector reviewed pertinent information regarding site cumulative exposure history, current exposure trends, and the ongoing exposure challenges for the Unit 1 outage. The inspector reviewed the 1R19 Outage ALARA Plan.
- The inspector reviewed the exposure status for tasks performed during the Unit 1 outage and compared actual exposure with forecasted estimates contained in

various project ALARA Plans (AP). The inspector reviewed the Work-In-Progress ALARA reviews for those jobs whose actual dose approached 75% of the forecasted estimate. Outage jobs reviewed included scaffolding installation (AP 09-1-35), insulation modifications (AP 09-01-33), reactor disassembly/reassembly (AP 09-1-25), routine valve work (AP 09-1-41), and replacing incore detectors (AP 09-1-19).

- The inspector evaluated the departmental interfaces between radiation protection, operations, maintenance crafts, and engineering to identify missing ALARA program elements and interface problems. The evaluation was accomplished by interviewing site staff, reviewing outage Work-in-Progress reviews, attending a Station ALARA Committee (SAC) meeting, and reviewing SAC meeting minutes. The SAC meeting addressed planning for cutting/replacing a reactor coolant drain line (RC-41), and revising the exposure estimate for insulation modifications.

Verification of Dose Estimates

- The inspector reviewed the assumptions and basis for the 1R19 outage ALARA plan. The inspector also reviewed the revisions made to various outage project dose estimates due to emergent work; e.g., insulation modifications (RWP 109-4048), authorized by the Station ALARA Committee.
- The inspector reviewed the licensee's procedures associated with monitoring and re-evaluating dose estimates when the forecasted cumulative exposure for tasks was approached and the implementation of these procedures during the outage. The inspector reviewed the exposures for the ten (10) workers who received the highest doses to confirm that no individual exceeded any regulatory limit.

Job Site Inspections

- The inspector reviewed the ALARA controls specified for transferring resin from CH-I-1A to a disposal container (RWP 109-0507, AP 09-1-58, procedure 1/2 -HPP-3.03.007), and attended the pre-job ALARA briefing. The inspector also reviewed the controls used for manually transferring a spent filter (CH-FL-2) to a storage drum (RWP 109-1020, AP 09-1-11, procedure 1/2 OM-18.4A.E), the trouble shooting plan for removing the filter when it became disengaged from the transfer grapple, and the post-job debrief.
- During tours of the RBC, the inspector observed workers performing steam generator sludge lancing/FOSAR (RWP 109-4015), eddy current testing on the recirculation spray heat exchanger (RWP 109-4043), valve repairs, and de-mobilization activities. Workers were questioned regarding their knowledge of job site radiological conditions and ALARA measures applied to their tasks.

Source Term Reduction and Control

- The inspector reviewed the status and historical trends for the Unit 1 source term. Through review of survey maps and interviews with the Senior Nuclear Specialist-ALARA, the inspector evaluated recent source term measurements and control strategies. Specific strategies being employed included use of macro-porous clean

up resin, zinc addition, increased filtration flow, enhanced chemistry controls, system flushes, and temporary shielding.

Declared Pregnant Workers

- The inspector reviewed the procedural controls for managing declared pregnant workers (DPW) and determined that no DPW was employed during the Unit 1 outage.

Problem Identification and Resolution

- The inspector reviewed elements of the licensee's corrective action program related to implementing the ALARA program to determine if problems were being entered into the program for timely resolution. Condition reports related to programmatic dose challenges, personnel contaminations, and the effectiveness in predicting and controlling worker exposure were reviewed.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (6 samples total)

The inspectors sampled licensee submittals for Performance Indicators (PI) listed below for both Unit 1 and Unit 2 to verify accuracy of the data recorded from April 2007 through June 2009. The inspectors reviewed Licensee Event Reports, condition reports, portions of various plant operating logs and reports, and PI data developed from monthly operating reports. Methods for compiling and reporting the PIs were discussed with cognizant engineering and licensing personnel. To verify the accuracy of the PI data reported during this period, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, were used for each data element.

Cornerstone: Mitigating Systems (2 samples)

- Unit 1 and 2 Safety System Functional Failure [MS05]

Cornerstone: Barrier Integrity (4 samples)

- Unit 1 and 2 Reactor Coolant System Activity [BI01]
- Unit 1 and 2 Reactor Coolant System Leak Rate [BI02]

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152 - 2 samples total).1 Daily Review of Problem Identification and Resolutiona. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into FENOC's corrective action program. This review was accomplished by reviewing summary lists of each CR, attending screening meetings, and accessing FENOC's computerized CR database.

b. Findings

No findings of significance were identified.

.2 Annual Sample: Review of Final Cause and Corrective Actions of Inadvertent Unlatch of a Control Rod Drive Shaft during Refueling 2R13a. Inspection Scope (1 sample)

The inspectors selected CR 08-39693 as a problem identification and resolution (PI&R) sample for a detailed follow-up review. CR 08-39693 documented on May 2, 2008, an inadvertent unlatching of a control rod drive shaft during its transfer from its storage location to its core location by vendor personnel after planned split pin replacements. The tool used in the drive shaft installation was specific to the split pin replacement project. Review of the initial event is documented in report 05000412 / 2008003.

The inspectors reviewed the vendor apparent cause and assessed FENOC's cause analysis, extent of condition, operability determination, and prioritization and timeliness of corrective actions to prevent recurrence. Documents reviewed for this inspection are located in the Attachment.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that FENOC properly evaluated the degraded condition and implemented appropriate immediate and long term corrective actions. The CR was complete and included cause evaluations by FENOC and the vendor. No human performance deficiencies were noted. It was determined that the handling tool is not fail-safe and can unlatch if the drive shaft weight is relieved by interference with a guide card. The licensee discontinued use of the vendor's special tool during the issue and has revised applicable procedures to prevent future use.

.3 Annual Sample: Review of Submerged Safety Related Cablesa. Inspection Scope (1 sample)

The inspectors selected CR 08-42380 as a PI&R sample for a detailed follow-up review. CR 08-42380 documented the identification of safety related cables found submerged in water on June 25, 2008 for an indefinite period of time. The issue was identified during routine manhole inspections. The inspectors assessed FENOC's problem identification threshold, operability determination, extent of condition review, and the prioritization and timeliness of corrective actions to determine whether FENOC was appropriately identifying, characterizing, and correcting problems associated with these issues and whether the planned or completed corrective actions were appropriate to prevent recurrence. Additionally, the inspectors observed manhole and cable inspections on June 9-10, 2009 and interviewed engineering personnel. The inspectors reviewed the specification, testing and long term moisture resistance qualification report for the subject cables. Specific documents reviewed are listed in the attachment to this report.

b. Findings and Observations

Introduction: The inspectors identified a non-cited violation (NCV) of 10CFR Part 50, Appendix B, Criterion III, "Design Control," in that FENOC did not maintain safety related cables in an environment for which they were designed. The licensee failed to demonstrate that the cables are qualified for continuous submerged conditions, and that they will remain operable, although the cables are presently operable.

Description: Safety related and non-safety related power and control cables may be submerged in water on a continuous basis. The affected cables included cables from the Unit 1 River Water and Unit 2 Service Water from the Main Intake Structure carrying power to the Class 1E load through electrical manholes 1EMH-8A and 1EMH-8B.

A review of the licensing basis and licensee documentation reveals the cables are selected and purchased for dry, wet, and immersed in water conditions. The inspectors determined, after discussions with additional NRC specialists, that this does not include continuous submerged conditions. The inspectors reviewed the specifications used to purchase these cables and noted that the subject cables are not designed for continuous submergence.

The environmental conditions in the manholes can be dry, wet, and immersed in water. A review of the licensee's underground cable duct drawings showed that the manholes are constructed below grade and expected to accumulate water. However, the cables can become continuously submerged in water if the accumulation is not managed or manhole degraded conditions not effectively corrected. Presently, the licensee relies on cable penetration seal integrity and manual dewatering of the manholes annually (for 1EMH-8A and 8B only) or biennially to manage water accumulation. The most recent inspection (June 9, 2009) of manholes identified approximately 2 feet of water in 1EMH-8A and 11 feet of water in 1EMH-8B; conditions of apparent continuous submergence for manhole 1EMH-8B cables. The licensee failed to ensure that the cables were maintained in a design condition for the anticipated environmental conditions by not thoroughly evaluating the effect of continuous cable submergence apparent in CRs 09-60591; 08-43594; 08-42380; 06-6305; 06-04144; 04-03545; 02-02348 and evaluating the effectiveness of prior corrective actions.

The licensee had previously documented an engineering evaluation of cable suitability to submerged conditions (CR 02-02348, March 21, 2002) to address NRC Information Notice 2002-12, Submerged Safety-Related Electrical Cables. The licensee concluded

that based on cable construction, qualification testing performed, and operational performance, the cables in manholes 1EMH-8A and 8B were acceptable. This evaluation had also been the basis for subsequent evaluations for as-found manhole conditions. Corrective actions were taken to annually inspect and dewater the manholes and address as-found degraded conditions, however the licensee has not adequately addressed the apparent continuous submergence of safety related cables in the subject manholes.

The licensee has pumped down water from the manholes to minimize water, and inspected the cables, seals, and tray supports. An immediate operability assessment was also performed for as found conditions and CRs written (09-60316; 09-60445; 09-60591). The inspectors questioned the licensee on the need to re-evaluate the frequency of manhole inspections, based on as-found conditions.

A review of the licensee's response to NRC Generic Letter 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients," did not identify any past cable failures at Beaver Valley.

Analysis: Failure to maintain safety related cables in an environment for which they were designed is considered a performance deficiency. The inspectors determined that the performance deficiency was not similar to the examples for minor deficiencies contained in IMC 0612, Appendix E, "Examples of Minor Issues". The finding was more than minor in accordance with IMC 0612, Appendix B (Section 1-3), "Issue Screening," because if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding did not have willful aspects.

In accordance with IMC 0609.04 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency which resulted in a loss of operability or functionality, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification allowed outage time, did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk-significant for greater than 24 hours, and was not potentially risk significant due to a seismic, flooding or severe weather initiating event.

The performance deficiency had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because the licensee did not thoroughly evaluate problems such as the resolutions, address causes, and evaluate the effectiveness of corrective actions [P.1 (c)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to ensure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, FENOC did not maintain safety related cables in an environment for which they were designed. The issue was entered into the licensee's corrective action program (CR 09-60496) to initiate a review of the current manhole and cable monitoring programs, and to initiate long-term corrective actions. Because this finding was of very low safety significance, and it was entered into

the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000334, 412/2009003-02, Continuously Submerged Cables Design Deficiency)**

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 - 7 samples total)

.1 Plant Event Review

a. Inspection Scope (6 samples)

For the plant events below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to regional personnel and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of additional reactive inspection activities. The inspectors reviewed FENOC's follow-up actions related to the events to assure that appropriate corrective actions were implemented commensurate with their safety significance. Documents reviewed during the inspection are listed in the Attachment.

- Unit 1: On April 20, 2009, main feedwater isolation (P14 actuation on high 'B' steam generator water level) during plant shutdown for refueling outage 1R19. The high steam generator water level was caused by a failed main feedwater bypass regulating valve (1FW-489) controller, causing it to inadvertently fully open. Operators responded appropriately and mitigating systems performed as designed. The licensee documented this issue in CR 09-57474. This issue was also reviewed under NRC OpESS FY2009-02, "Negative Trend and Recurring Events Involving Feedwater Systems;"
- Unit 1: On April 20, 2009, invalid actuation of the steam-driven auxiliary feedwater pump (FW-P-2) during plant shutdown for refueling outage 1R19. An apparent failed solid state protection relay caused one of two steam admission valves (TV-1MS-105B) to open, causing the pump to inject. The auxiliary feedwater flow control system responded appropriately to mitigate the effect on plant cooldown. The licensee documented this issue in CR 09-57499. This issue was also reviewed under NRC OpESS FY2009-02, "Negative Trend and Recurring Events Involving Feedwater Systems;"
- Unit 1: On April 23, 2009, identification of a degraded containment liner plate during a planned visual inspection in refueling outage 1R19. The degradation was repaired and declared operable on May 7, 2009. The licensee documented this issue in CRs 09-57589 and 09-57762. Also see section 1R08, "Inservice Inspection." This issue is documented in NRC Inspection Report 05000334/2009006 (ADAMS ML091870328, on July 6, 2009);
- Unit 1: On April 26, 2009, identification of two circumferential ultrasonic examination indications on base material of a 2 inch reactor coolant loop drain line (BV-1RC-41) on the 'A' loop hot leg. The drain line material was replaced and returned to service. Also see section 1R08, "Inservice Inspection." The licensee documented this issue in CR 09-58004;

- Unit 1: On May 6, 2009, inadvertent train 'A' safety injection signal was generated, while in mode 5, due to a faulty safety injection block switch. Operators responded appropriately and no safety injection actually occurred. Faulty switches were replaced. The licensee documented this issue in CR 09-58765; and
- Unit 1 and Unit 2: On June 18, 2009, at 9:39 p.m., a dual-unit Unusual Event (UE) was declared in response to a fire alarm and CO2 system actuation in the Emergency Response Facility (ERF) substation. The licensee entered emergency action level (EAL) 4.1. The onsite fire brigade responded and no fire was discovered, and determined there was a spurious actuation of the CO2 system. The UE was terminated at 10:36 p.m. The licensee is still investigating the cause, but is preliminarily attributed to a fire protection panel fault. The licensee documented this issue in CR 09-60763.

b. Findings

No findings of significance were identified.

.2 Review of Licensee Event Reports (LERs) (1 sample)

(Closed) LER 05000334/2009-001-00: Surveillance Test Inadvertently Violates Technical Specification 3.6.1 for Containment Operability.

During a planned surveillance flow test on one of two outside recirculation spray system (RSS) pumps while in Mode 1, the suction and discharge containment isolation valves on the RSS train of piping were closed, but not de-energized. These valves receive an auto-open signal during a phase 'B' containment isolation. After the test, when the pump casing drain valve was opened to drain the system to restore to a normal configuration, the operations crew realized that the containment isolation valves needed to be de-energized in order to maintain containment operability. This condition existed in excess of seven hours, twice, during filling and draining sequences. This is contrary to the requirement in TS 3.6.1, "Containment". The crew immediately de-energized the affected valves.

The inspectors reviewed the LER, verified the appropriateness of corrective actions and extent of condition reviews, interviewed engineers and licensed operators, and completed a plant walkdown with FENOC engineers to identify the pump casing drain valve. Corrective actions include revising affected procedures to properly include TS 3.6.1. The enforcement aspects of the violation are discussed in Section 4OA7, Licensee Identified Violations. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted the following observations of security force personnel and activities to ensure that the activities were consistent with

licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. Specific examples include:

- Observed operations within the central and secondary alarm stations;
- Toured selected security towers and security officer response posts;
- Observed security force shift turnover activities; and
- Reviewed security logs and corrective action program documents which discussed security issues.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 TI 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds (Unit 1)

a. Inspection Scope

Temporary Instruction, TI 2515/172 provides for confirmation that owners of pressurized-water reactors (PWRs) have implemented the industry guidelines of the Materials Reliability Program (MRP) -139 regarding nondestructive examination and evaluation of certain dissimilar metal (DM) welds in reactor coolant systems containing Alloy 600/82/182. The TI requires documentation of specific questions in an inspection report. The questions and responses were previously documented in NRC Inspection Report 05000334, 412/2008003, Attachment B.

The hot and cold leg nozzle-to-safe end dissimilar metal (DM) welds of the "A" S/G were examined during this 1st period inspection interval (1R19 outage). These welds were Risk-Informed ISI UT examined during 1R19. During the S/G replacement project 1R17, these particular nozzle welds were replaced with Alloy 52 and are resistant to stress-corrosion cracking and are considered Category "A" welds per MRP-139, Revision 1, and therefore the required examinations are per ASME Section XI. ASME Section XI, Table IWB-2500-1, B5.70 requires a volumetric and surface exam once per interval of the dissimilar metal welds for the S/G cold and hot leg nozzle-to-safe end welds. The Risk-Informed examination of these DM welds was only a UT examination (no surface exam) since these welds were selected in a particular piping segment per the Risk-Informed, ISI program that supersedes the ASME Section XI Code exam. The inspector reviewed the manual UT examination data records of the "A" S/G cold and hot leg nozzle-to-safe-end DM welds RC-E-1A-N11 and RC-E-1A-N12.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

- .1 Access Control / ALARA Planning and Control
The inspector presented the inspection results of 2S01 and 2S02 to Mr. Kevin Ostrowski, Director of Site Operations, and other members of FENOC staff, at the conclusion of the inspection on April 30, 2009. No proprietary information is presented in this report.
- .2 Inservice Inspection
The inspector presented the inspection results 1R08 to Mr. Kevin Ostrowski, Director of Site Operations, and other members of the FENOC staff at the conclusion of the ISI inspection at an exit meeting on May 7, 2009. Some proprietary information was reviewed during this inspection and was either returned or properly destroyed, but no proprietary information is presented in this report.
- .3 Problem Identification and Resolution Submerged Cable Focus Sample
The inspectors presented the inspection results Mr. Peter Sena, Beaver Valley Site Vice President, and other members of FENOC staff, at the conclusion of the inspection on June 11, 2009. No proprietary information is presented in this report.
- .4 Quarterly Exit Meeting Summary
On July 22, the inspectors presented the normal baseline inspection results to Mr. Ray Lieb, Director of Site Operations, and other members of the FENOC staff. The inspectors confirmed that proprietary information was not retained at the conclusion of the inspection period.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- Technical Specification 3.6.1, "Containment," requires that containment operability be maintained in Mode 1, restored within one hour, or the reactor be shutdown to Mode 3 within six hours. Contrary to this requirement, FENOC failed to maintain containment operability or restore containment operability in the allowed time. Specifically, FENOC did not ensure containment isolation valves MOV-1RS-155B and MOV-1RS-156B were closed and de-energized prior to opening the 1RS-P-2B pump casing drain valve. The issue was entered into FENOC's corrective action program as CR 09-56250. The finding was more than minor because it is associated with the configuration control attribute of the barrier integrity cornerstone and affects the cornerstone objective of ensuring containment boundary preservation under postulated design-basis accident scenarios. The inspectors determined that the finding was of very low safety significance (Green), based on IMC 0609, Appendix H, Table 4.1 because this is a Type B finding and the affected pipe size is less than 2 inches in diameter.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT**Licensee personnel

G. Alberti	Steam Generator Program Owner
S. Baker	Site, Radiation Protection Manager
R. Bologna	Plant Engineering, Manager
T. Crella	Senior Radiation Protection Technician
J. Fontaine	Supervisor, ALARA
L. Freeland	Director Performance Improvement
J. Freund	Supervisor, Rad Operations Support
D. Girdwood	Radiation Protection, Quality Assessor
D. Grabski	ISI Coordinator
T. Heimel	NDE Level III
W. Klinko,	Diesel System Engineer
E. Lauck	System Engineer
R. Lubert	Electrical I&C/Plant Engineering, Supervisor
C. Miller	Senior Radiation Protection Technician
J. Miller	Site Fire Marshall
B. Murtagh	Design, Supervisor
K. Ostrowski	Director, Site Operations
J. Patterson	RCS System Engineer
R. Pucci	Senior Nuclear Specialist - ALARA
P. Sena	Site Vice President
B. Sepelak	Supervisor, Regulatory Compliance
D. Schwer	Manager, Work Management
G. Storolis	Unit 2 Shift Manager
J. Tweddell	License Renewal

Other Personnel

D. Lew	Director, Division of Reactor Projects, NRC Region I
R. Mathew	Team Leader, NRC NRR
J. Rogge	Branch Chief, NRC Region I
L. Ryan	Inspector, Pennsylvania Department of Radiation Protection

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpen/Closed

05000334 / 2009003-01	NCV	Inadequate Post-Maintenance Testing Specified for Safety-Related River Water Check Valve. (Section 1R19)
05000334, 412 / 2009003-02	NCV	Continuously Submerged Cables Design Deficiency. (Section 4OA2.3)

Closed

05000334 / 2009001-00 LER Surveillance test Inadvertently Violates Technical Specification 3.6.1 for Containment Operability. (Section 4OA3.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

1/2OM-53C.4A.35.1, Rev. 4, "Degraded Grid,"
NOP-OP-1003, Rev. 0, "Grid Reliability Protocol,"
NOP-OP-1007, Rev. 5, "Risk Determination,"

Condition Reports

09-60033 09-60106

Work Orders

200150639
200316056
200317926
200319210
200319961
200320671

Miscellaneous

BV-PA-09-02, Summer Readiness PMS not Completed by June 1st

Section 1R04: Equipment Alignment

Procedures

1DBD-24, Design Basis Document for Feedwater System
2OST-30.4, Service Water System A Header Valve Test
2DBD-30, Design Basis Document for Service Water System
2OM-30.4.D, Spare Service Water Pump Startup

Drawings

10080-RM-0411-001, Rev. 15, "Valve Oper No. Diagram Low/High Head Safety Injection
08700-RM-0436-001, Rev. 11, "Valve Oper No. Diagram Emergency Diesel Generator Air Start
System"
8700-RM-0436-002, Rev. 9, "Valve Oper No. Diagram Emergency Diesel Gen. Fuel Oil System"
10080-RM-430-1, VOND Service Water Supply & Distribution
10080-RM-430-2, VOND Service Water Primary Cooling
10080-RM-430-3, VOND Service Water Primary Cooling

Section 1R05: Fire ProtectionProcedures

1OST-33.21, Containment Penetrations Area Fire Protection Test

Condition Reports

02-11507	08-49244	09-57425*	09-57811	09-60284	09-60911
09-60761	09-60762				

Miscellaneous

Fire Protection Safe Shutdown Report; RTL# A1.080J, Addendum 28

RTL# A9.210X, Rev. 1

BVPS Unit 1 Appendix R Report, Chapter 11

BVPS Pre-Fire Plan for ERF Substation and ERF diesel generator building

BVPS Event Logs, dated June 18, 2009

Section 1R06: Flood Protection

Documents reviewed are listed in section 4OA2 for this sample.

Section 1R08: Inservice InspectionProcedures

NDE-VT-513, Visual Examination of the Reactor Vessel Bottom Mounted Instrumentation (BMI) Nozzles, Rev. 3

NDE-UT-323, Ultrasonic Examination of Welds Joining Cast Austenitic Piping Components, Rev. 2

ISIE-ECP-2, Steam Generator Examination Program, Rev. 21

1&2 ADM-2039, BVPS ISI Ten-Year Plans, Rev. 8

1&2 ADM-0801, ASME Section XI Repair/Replacement Program, Rev. 7

NOP-ER-2001, Boric Acid Corrosion Control Program, Rev. 7

Unit 1/2, NDE GP-105, Evaluation of PSI/ISI Flaw Indications, Rev. 9

Unit 1/2, ADM-2096, Alloy 600/690 Management Program, Rev. 7

PWSCC Susceptibility Assessment of the Alloy 600 and Alloy 82/182 Components in Beaver Valley Units 1 and 2, dated December 2003

NDE Examination Reports

UT-09-1009, 2" socket welded RCS drain line RC-41-1502-Q1, completed 4/28/09

UT-09-1062, RC-E-1A-N-11, Nozzle to safe-end DM weld (Hot Leg), completed 5/6/09

UT-09-1063, RC-E-1A-N-12, Nozzle to safe-end DM weld (Cold Leg), completed 5/6/09

PT-09-1003, RH-1-1-A-01 to 02, Welded attachment support SH-40, completed 4/29/09

PT-09-1004, RH-1-1-A-01 to 02, Welded attachment support SH-40, completed 5/01/09

UT-09-1055, DLW-LOOP3-7-S-02, RCS "C" loop cold leg pipe girth weld, completed 5/5/09

UT-09-1039, 1CNMT-Liner Area #3, completed 5/1/09

BOP-MT-09-029, BV-1-RCBX, Primary Containment, Liner repair root pass, completed 5/4/09

BOP-MT-09-031, BV-1-RCBX, Primary Containment, Liner plate final, completed 5/4/09

BOP-MT-09-032, BV-1-RCBX, Primary Containment, Liner plate final, completed 5/4/09

BOP-UT-09-161, Containment liner repair plate butt weld, 45-degree scan, completed 5/4/09

BOP-UT-09-162, Containment liner repair plate butt weld, 60-degree scan, completed 5/4/09

BOP-VT-09-042, VT-1, RBC Liner plate weld, completed 5/4/09

SG-CDME-07-24, BV Unit 1 Steam Generator Degradation Assessment 1R18 Refueling Outage, Rev.1

Work Orders

200367661 200366975 200367239 200367242

Condition Reports

07-25709 09-52089 09-54434 09-57589 09-57762 09-57665
09-57804 09-58004 09-58156

Section 1R12: Maintenance Rule Implementation

Procedures

1OST-15.1, Reactor Plant Component Cooling Water Pump Operating Surveillance Test

Condition Reports

07-27037 09-60127 09-59359

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Calculations

8700-DMC-1669, Rev. 1, Add. 1, "Time to RCS Boiling Calculation for the Pre-outage Shutdown Defense-in-Depth Report."

Procedures

NOP-OP-1007, Rev. 5, "Risk Determination"
1/2-ADM-2033, "Risk Management Program"

Work Orders

Condition Reports

09-57463 09-58491 09-58771 09-58775 09-58815

Other

1R19 Defense-In-Depth review for April 21, 2009
Unit 1 Weekly Maintenance Risk Summary for the week of June 15, Revs. 0 & 2
Unit 2 Weekly Maintenance Risk Summary for the week of June 15, Revs. 0 & 2

Section 1R15: Operability Evaluations

Calculations

8700-UR(B)-511
10080-UR(B)-510
12241-UR(B)-427

Procedures

1OST-24.15B "Auxiliary Feedwater System Solid State Protection System Testing Train B"

Condition Reports

04-05251
06-01122
09-57966
09-58000
09-58798
09-59713

Miscellaneous

Event Notification 45015, dated April 23, 2009
Engineering Change 09-0365-01, Repair Containment Liner Plate Hole
IN 2005-24
L-09-119, 10CFR 50.55a Request Number BV1-IWE-2-2, dated April 28, 2009
Mode Hold Resolutions for 09-57589, 09-57762
NOTF 600538028, 600538316
NUREG-1522, Assessment of Inservice Conditions of Safety-Related Nuclear Plant Structures
RIS 2009-02, Rev. 1, "Use of Containment Atmosphere Gaseous Radioactivity Monitors for
Reactor Coolant System Leakage Detection Equipment at Nuclear Power Reactors"
TSTF-513
WO 200124471, 200367013, 200367242
Unit 2 Fire Protection Safe Shutdown Report

Section 1R18: Plant Modifications

Condition Reports

09-57390

Regulatory Applicability Determination and 10 CFR 50.59 Screens

09-01453 09-0174

Procedures

1OM-52.4.R.1.F, Station Shutdown from 100% Power to Mode 5.

Drawings

8700-6.24-158 sheet1, Rev. 7
8700-6.24-158 sheet 8, Rev. 2
8700-6.24-158, sheet 9, Rev. 2
8700-RM-0430-001, Rev 30
8700-RM-407-1, Rev. 28
8700-2.19-0036, Rev. A

Work Orders

200359549 200359555 200313752 200313753

Miscellaneous

NUREG-0138, NUREG-0224
EGG-EA-5826, TER Evaluation Report of the Overpressure protection System for the Beaver
Valley Power Station Unit 1, dated March 1982.

Section 1R19: Post-Maintenance Testing

Procedures

1OST-36.2, Rev. 51, "Diesel Generator No. 2 Monthly Test"
1OM-36.4AN, Rev. 2, "Diesel Generator No. 2 Fast Start"

Work Orders

200124471 200308605 200284373 200296714 200296713
200367242 200369010 200233562

Condition Reports

09-57435 09-57813 09-58940

Miscellaneous**Section 1R20: Refueling and Outage Activities**Procedures

1BVT-1.1.1, Rev. 4, "Rod Position Indication System Calibration Verification and Control Rod Drop Test"

1BVT 2.1.1, Issue 1, Rev. 0, "Control Rod plant Exercise and Data Collection"

1OM-6.4.AO, Rev. 20, "Isolating and Draining a Reactor Coolant Loop"

1OM-20.4E, Rev. 31, "Draining The Refueling Cavity"

1OM-50.4D, Rev. 49, "Reactor Startup From Mode 3 to Mode 2"

1OM-50.4L, Rev. 18, "Plant Heatup From Mode 6 to Mode 3"

1OM-50.4L, Rev. 18, "Plant Heatup From Mode 6 to Mode 3, Data Sheet 2: RCS Heatup / Cooldown Determination"

1OM-52.4.K, Rev. 0, "Tavg Coastdown Operations"

1OM-52.4.R.1.F, Rev. 14, "Station Shutdown from 100% Power to Mode 5", Data Sheet 2: RCS Cooldown Determination Tables.

1OST-47.2B, Rev. 7, "Containment Closeout Inspection"

1OST-49.2, Rev. 22, "Shutdown Margin Calculation (Plant Shutdown) (Updated for Cycle 19)"

1MSP-9.04-M, Rev. 8, "Containment Sump Inspection"

1RP-3.2, Issue 0, Rev. 3, "Fuel Transfer System"

1RP-3.26, Rev. 7, "Refueling Procedure Upper Internals Assembly Installation"

1RP-3.28, Rev. 4, "Lower Internals Assembly Removal / Installation"

1RST-2.1, Rev. 11, "Initial Approach to Criticality After Refueling"

1RST-2.2, Rev. 10, "Core Design Check Test"

NOBP-OM-4010, Rev. 4, "Restart Readiness for Plant Outages"

NOBP-WM-5003, Rev. 1, "FENOC Rigging and Lifting Manual"

NOP-OP-1005, Rev. 10, "Shutdown Defense in Depth"

NOP-WM-5003, Rev. 1, "Rigging, Lifting, and Load Handling"

Drawings

8700-02.102-0050, Rev. A, "General Arrangement Transfer System"

Cable Drive Installation, Transfer System – BVPS1, Rev. 1

Work Orders

Repetitive Task 10001 99-0201123-000 200285260 600426477

Miscellaneous

1R19 Outage Handbook

Defense-In-Depth Report, 1R19, dated April 6, 2009 and updated May 16, 2009

Operating Experience Handbook for BV 1R19

ECP 09-0035-001, BV1 and BV2 Tave / Power Coastdown, Master Package

8700-02.102-0010, UE&C Instruction Manual Cable Drive Fuel Transfer System

BVPS-1 Shift Operating / Refueling Logs dated April 19 – May 22, 2009

BV Unit 1 Cycle 20 Loading Pattern Map and Verification Video, reviewed May 12, 2009

NUREG-0612

Primavera Schedule, 1R19

Condition Reports

09-57474
09-57499
09-57762
09-57106
09-57589
09-59677
09-59702
09-60367
09-60572

Section 1R22: Surveillance Testing

Procedures

1OST-36.3, Train A EDG Autoload Test
1BVT-2.15.1, Rev. 5, "Reactor Plant Component Cooling Water Pumps [1CC-P-1A], [1CC-P-1B], [1CC-P-1C] Performance Curve Development"

Condition Reports

09-56250 09-57623 09-60127

Work Orders & Notifications

WO 200309388
NOTF 600537878

Miscellaneous

Unit 1 Shift Operating Logs dated March 26 – 28, 2009

Sections 2OS1 Access Control to Radiologically Significant Areas and 2OS2 ALARA Planning and Controls

Procedures

1/2-ADM-1601, Rev 15, Radiation Protection Standards
1/2-ADM-1611, Rev 9, Radiation Protection Administrative Guide
1/2-ADM-1621, Rev 3, ALARA Program
1/2-ADM-1630, Rev 10, Radiation Worker Practices
1/2-ADM-1631, Rev 5, Exposure Control
1/2-HPP-3.02.004, Rev 4, Area Posting
1/2-HPP-3.03.007, Rev 3, Transfer of Highly Radioactive Material from Plant Systems to Solid Waste
1/2-HPP-3.04.002, Rev 5, Bioassay Administration
1/2-HPP-3.05.001, Rev 4, Exposure Authorization
1/2-HPP-3.07.002, Rev 5, Radiation Survey Methods
1/2-HPP-3.07.013, Rev 3, Barrier Checks
1/2-HPP-3.08.001, Rev 8, Radiological Work Permit
1/2-HPP-3.08.003, Rev 10, Radiation Barrier Key Control
1/2-HPP-3.08.005, Rev 4, ALARA Review Program
1/2-HPP-3.08.006, Rev 1, Shielding
BVBP-RP-0003, Rev 4, Dosimetry Practices
BVBP-RP-0013, Rev 2, Radiation Protection Risk Assessment Process

BVBP-RP-0020, Rev 6, RP Job Coverage General Guidance
NOP-WM-7001, Rev 0, ALARA Program
NOP-WM-7002, Rev 0, Operational ALARA Program
NOP-WM-7003, Rev 0, Radiation Work Permit
NOP-WM-7017, Rev 0, Contamination Control Program
NOP-WM-7021, Rev 1, Radiological Postings, Labeling, and Markings
1/2-OM-18.4A.E, Rev 6, Removal of Spent Filter Cartridge From Filter Transfer Cask

Nuclear Oversight Field Observation Reports
Week of 4/20-26/2009

Condition Reports

09-58093	09-58195	09-58182	09-58115	09-58029	09-58162
09-58104	09-58043	09-58042	09-57896	09-57877	09-57843
09-57918	09-57701	09-57747	09-57797	09-57790	09-57810
09-57914	09-57901	09-55024	09-56516	09-56588	09-57570
09-57882					

ALARA Plans & related Work-in-Progress /Post-Job Reviews

09-01-35, Permanent Scaffolding
09-01-33, Insulation Modifications (except Cavity Work)
09-01-25, Reactor Disassembly
09-01-41, Routine Valve Work
09-01-19, Replace/Dispose of Incore Detectors
09-01-24, Secondary Side Steam Generator Sludge Lancing/FOSAR
09-01-58, Flush/Change Resin
09-01-11, Changeout/Replace 1CH-FL-2 Filter
09-01-33, Insulation Removal/Replacement Modification
09-01-26, Remove/Replace Incore Detectors
09-01-29, In-Service Inspections
09-01-31, Scaffolding

ALARA Committee Meeting Minutes

Meeting Nos. 09-01m/s, 09-02 m/s, 09-03 m/s, 09-04m/s, 09-05 m/s, 09-06 m, 09-07 m,
09-08 m, 09-09 m (m-manager's, s-subcommittee)

Miscellaneous ALARA Reports

1R19 Outage ALARA Plan
EPRI Standard Radiation Monitoring Program - Unit 1 Source Term Measurements
High Dose Individuals for 2009
Dose and Dose Rate Alarm Reports for 2009

Section 40A2: Problem Identification and Resolution

Procedures

NORM-ER-3112, Rev. 1, Cable Monitoring
1/2-PMP-E-75-001, 4160 Rev. 8, VAC Motor Inspection and Lubrication
1/2-75-MANHOLE-1E, Rev. 4, Inspection of Manholes for Water Induced Damage

Completed Procedures

1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Rev. 8 dated 12/27/07
1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Rev. 8 dated 02/08/08

1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Rev. 8 dated 08/15/08
1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Rev. 8 dated 07/01/08
1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Rev. 8 dated 05/19/08
1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Rev. 8 dated 02/24/08
1/2-75-MANHOLE-1E, Inspection of Manholes for Water Induced Damage, Rev. 4 dated
09/26/06
1/2-75-MANHOLE-1E, Inspection of Manholes for Water Induced Damage, Rev. 4 dated
11/07/08

Miscellaneous:

BV UFSAR Unit 1, Rev. 20
Kerite Letter dated December 5, 1991
Kerite Letter dated February 18, 2009
GL 2007-01, Inaccessible of Underground Power Cable Failures That Disable Accident
Mitigation Systems or Cause Plant Transients
IN 2002-12, Submerged Safety-Related Electrical Cables
IEEE 400.2, IEEE Guide for Field Testing of Shielded Power Cable Systems Using Very Low
Frequency (VLF)
Westinghouse Issue Report 08-124-M001

Condition Reports:

02-02302
02-02348
06-04144
06-06305
08-39693
08-42380
08-43594
09-60316
09-60387

Section 40A3: Event Response

Condition Reports

09-57474
09-58477
09-58873
09-58900
09-58905
09-59155
09-60763
09-60768

Procedures

½-EPP-IP-1.1, Rev. 43, "Notifications", Att B. Unusual Event – Control Room
½-EPP-IP-1.2, Rev. 35, "Unusual Event"
½-EPP-IP-1.1.F01, Nuclear Power Plant Initial Notification Form, dated June 18, 2009
1OM-1.4.Z, Rev.0, "ESF Signal Reset By Alternate Method"

Work Orders

200366604
200306521
200366962
200366752
200351634
200306527
200390431

Event Notifications

45000, dated April 20, 2009
45001, dated April 20, 2009
45001 (retraction), dated May 12, 2009
45015, dated April 23, 2009
45022, dated April 26, 2009
45099, dated May 28, 2009
45143, dated June 18, 2009

Miscellaneous:

BV-SA-09-018, Snapshot Self-Assessment for Unit 1 Inadvertent SSPS Train A SI Signal on May 6, 2009
Mode Hold Resolutions for CRs 09-57499, 09-57474, 09-57762, 09-57589, 09-58004
NRC OpESS 2009-02, "Negative Trend and Recurring Events Involving Feedwater Systems"
Shift Logs dated, June 18, 2009
Event Timeline, June 18, 2009

LIST OF ACRONYMS

ADM	Administrative Procedure
ALARA	As Low As is Reasonably Achievable
AP	ALARA Plan
ASME	American Society of Mechanical Engineers
BACC	Boric Acid Corrosion Control
BCO	Basis for Continued Operations
BMI	Bare Metal Inspection
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report(s)
DM	Dissimilar Metal
DPW	Declared Pregnant Workers
EAL	Emergency Action Level
ERF	Emergency Response Facility
FA	Functionality Assessments
FENOC	First Energy Nuclear Operating Company
FOSAR	Foreign Object Search and Retrieval
IOD	Immediate Operability Determinations
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISI	Inservice Inspection
LCO	Limiting Conditions for Operations

LER	Licensee Event Report
LHRA	Locked High Radiation Area
MR	Maintenance Rule
MRP	Materials Reliability Program
MSP	Maintenance Surveillance Package
MT	Magnetic Particle Testing
NDE	Non-Destructive Examination
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OD	Operability Determinations
OST	Operations Surveillance Test
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post Maintenance Testing
POD	Prompt Operability Determinations
PT	Penetrant Testing
PWR	Pressurized-Water Reactor
RBC	Reactor Building Containment
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RSS	Recirculation Spray System
RWP	Radiation Work Permit
SAC	Station ALARA Committee
SSC	Structures, Systems, and Components
SG	Steam Generator
TS	Technical Specification
UE	Unusual Event
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
VT	Visual Testing